

Table 3-8e
Development of Risk-Based Concentrations for Non-Tidal Wetland Sediment
Great Blue Heron
Investigation Area H1 Feasibility Study
Mare Island, Vallejo, California

$$RBC_{\text{sediment}} = BW \times TRV \times HQ / [(IR_{\text{prey1}} \times BAF_1) + (IR_{\text{prey2}} \times BAF_2) + IR_{\text{sediment}}] \times SUF]$$

COEC ^a	BAF ^b		TRV (mg/kg BW-day)		RBC- Sediment (mg/kg)	
	Rodent Tissue	Amphibian Tissue	Low	High	TRV-Low	TRV-High
Inorganics						
Aluminum	1.11E-02	7.75E-03	109.7	1,097	47119	471194
Antimony	1.22E+00	--	NTV	NTV	--	--
Arsenic	--	--	5.5	22	3036	12143
Barium	9.41E-02	--	20.8	41.7	4731	9486
Cadmium	--	--	0.08	10.4	44.2	5740
Chromium	2.60E-02	2.45E-01	2.66	2.78	287	300
Copper	3.45E-01	--	2.3	52.3	204	4631
Lead	6.10E-01	--	0.014	8.75	0.75	471
Manganese	--	4.78E-02	77.6	776	24832	248316
Mercury	--	7.42E-01	0.039	0.18	1.8	8.1
Nickel	--	--	1.38	56.3	762	31075
Selenium	6.12E+00	5.77E+00	0.23	0.93	0.70	2.8
Tin	--	--	6.8	16.9	3753	9328
Vanadium	--	--	11.4	114	6292	62922
Zinc	1.11E+00	7.87E-01	17.2	172	320	3195
Organics						
PCBs	1.81E+01	1.03E+01	0.09	1.27	0.12	1.6
Anthracene	--	--	NTV	NTV	--	--
Benzo(a)anthracene	--	--	NTV	NTV	--	--
Benzo(a)pyrene	--	--	0.001	0.01	0.55	5.5
Benzo(b)fluoranthene	--	--	NTV	NTV	--	--
Benzo(ghi)perylene	--	--	NTV	NTV	--	--
Benzo(k)fluoranthene	--	--	NTV	NTV	--	--
Chrysene	--	--	NTV	NTV	--	--
Fluoranthene	--	--	NTV	NTV	--	--
Indeno(1,2,3cd)pyrene	--	--	NTV	NTV	--	--
Phenanthrene	--	--	NTV	NTV	--	--
Pyrene	--	--	NTV	NTV	--	--

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Exposure Assumptions and Equation:^c

	Value	Units	
IRprey(dry wt.) =	0.126	kg/day (dry weight)	-- = Not available
IRrodent(dry wt.) ^g =	0.0630	kg/day (dry weight)	NTV = No toxicity value
IRamphibian(dry wt.) ^g =	0.0630	kg/day (dry weight)	
IRsediment (dry wt.) ^e =	0.00416	kg-day (dry weight)	
Tissue Moisture (mouse) ^d =	68%	percent	
Tissue Moisture (amphibian) ^d =	85%	percent	
Site Use Factor ^f =	100%	percent	
Body Weight =	2.295	kg	
Hazard Quotient (HQ) =	1		

Notes:

- a - Constituent of ecological concern.
- b - Dry weight basis mouse and amphibian BAFs presented in Tables 3-6a and 3-6b.
- c - Exposure parameters used to calculate risk are discussed in detail in the BERA.
- d - The wet weight tissue concentrations were converted to dry weight by dividing by 1 - tissue moisture.
- e - Ingestion rate of sediment based on 3.3 percent of the prey ingestion rate (dry weight); based on mallard (Beyer et al., 1994).
- f - Site use factor was based on a conservative 100% use of the site for the heron's foraging range.
- g - Based on dietary composition of 37% plant and 63% earthworm (Zeiner et al., 1990).